



RHT Climate Transmitter WM and DM models

DATASHEET – V1.4x

1 INTRODUCTION

RHT Climate Transmitters Wall Mount (**WM**) and Duct Mount (**DM**) models have high-precision, stable sensors for measuring temperature and relative humidity. Being micro processed devices, they allow full configuration via USB or RS485 interface via a Modbus RTU command.

SigNow configuration software or app allows you to configure the features of the device, as well as perform diagnostics on the analyzed information.

Apart from the **temperature** and **relative humidity** values, which are read directly from the sensor, the transmitter calculates the value of the following psychrometric properties¹: Dew Point Temperature, Wet Bulb Temperature, Absolute Humidity, Frost Point Temperature, Specific Enthalpy, Partial Vapor Pressure, and Mixture Ratio.

Any variable read by the sensor or calculated by the device can be transmitted via one of the two available analog outputs. You are also allowed to configure the electrical operating level of each output: 0-10 V and 4-20 mA.

Two digital outputs with alarm or control functions can be related to any variable read or calculated by **RHT Climate Transmitter**.

The following options are also available: RS485, Display with Backlight and Audible signal.

It is important that you read the manual before using this device and check that the versions of the manual and the device match. The firmware version number is displayed when the device is powered on .

1.1 IDENTIFICATION

The **RHT Climate Transmitter** line is available in various configurations:

- **Wall Mount Model (WM)**: Recommended for wall mounting.
- **Duct Mount Model (DM)**: Recommended for duct mounting. DM models are available with stainless steel (S) sensor probe and with lengths of 150 mm, 250 mm, or 400 mm.

The table below shows all available models:

MODEL	RS485	DISPLAY	STAINLESS STEEL PROBE
RHT Climate-WM-485-LCD	✓	✓	
RHT Climate-WM-485	✓		
RHT Climate-DM-150S-485	✓		150 mm
RHT Climate-DM-150S-485-LCD	✓	✓	150 mm
RHT Climate-DM-250S-485	✓		250 mm
RHT Climate-DM-250S-485-LCD	✓	✓	250 mm
RHT Climate-DM-400S-485	✓		400 mm
RHT Climate-DM-400S-485-LCD	✓	✓	400 mm

Table 1

¹ Psychrometry is the study of thermodynamic properties of dry air and water vapor mixtures. Obtaining the psychrometric properties is crucial in the psychrometric processes of air conditioning, refrigeration, cooling and freezing, air humidification and dehumidification, drying and dehydration of humid devices, as well as in environmental and meteorological control.

2 DIMENSIONS

2.1 RHT *Climate* TRANSMITTER: WM MODEL

The figure below shows the dimensions:

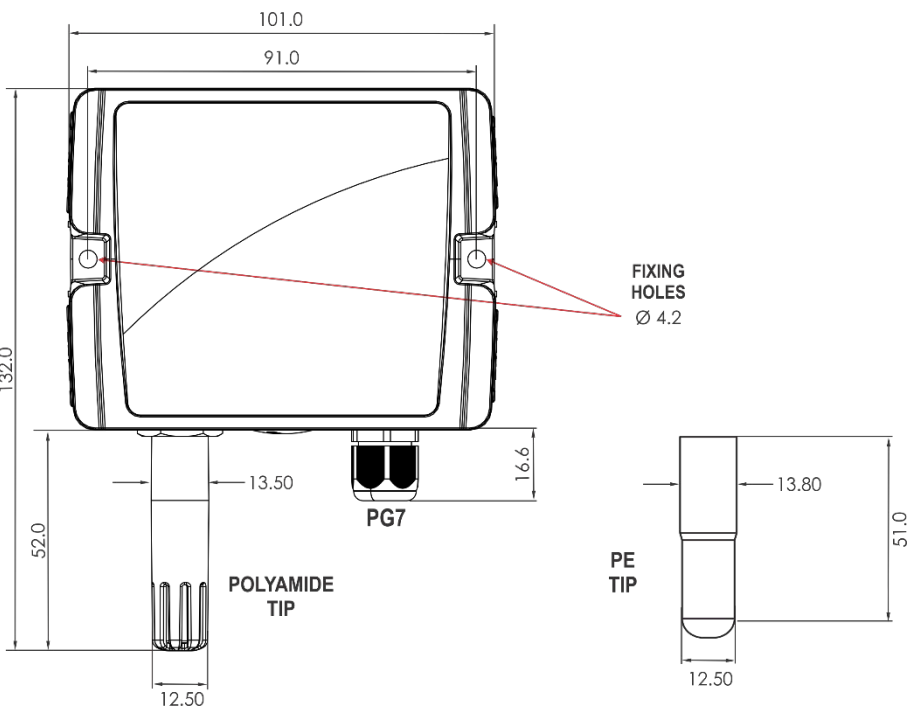


Figure 1

2.2 RHT *Climate* TRANSMITTER: DM MODEL

The figure below shows the flange dimensions and perforation:

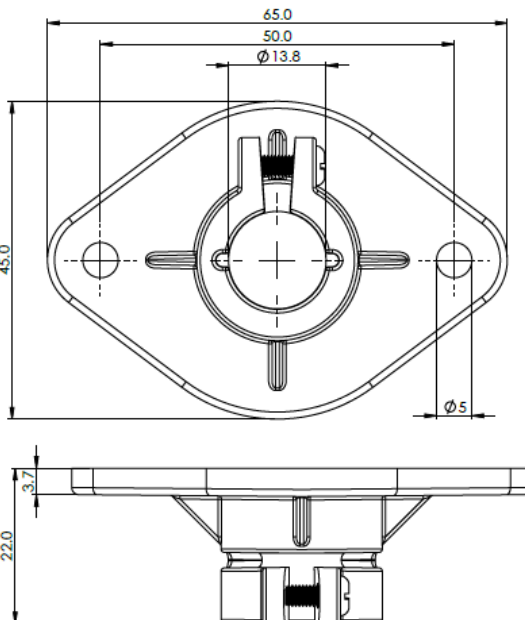
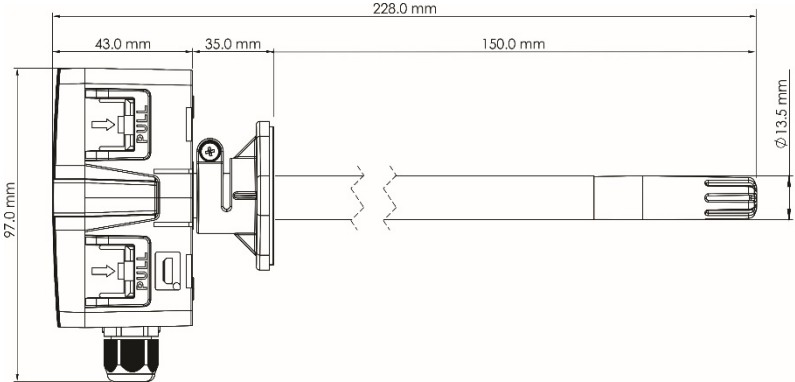
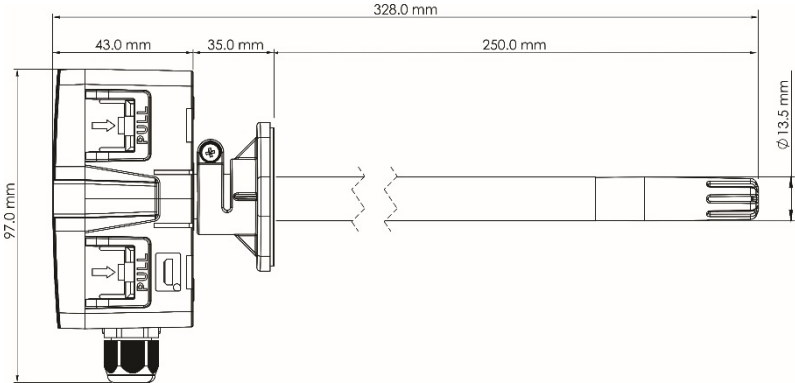
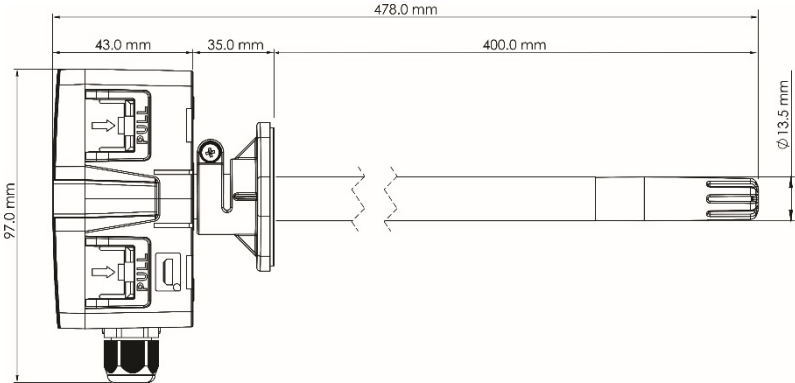


Figure 2

The probes for these models are made of stainless steel, with lengths of 150, 250, or 400 mm²:

150 mm Model	 Figure 3
250 mm Model	 Figure 4
400 mm Model	 Figure 5

² The figures show the dimensions of the RHT *Climate* Transmitter with the Polyamide tip.

3 ELECTRICAL CONNECTIONS

3.1 INSTALLATION RECOMMENDATIONS

- Signal conductors should run through the plant separately from the power supply and output conductors. If possible, in grounded conduits.
- The power supply for electronic instruments must come from an appropriate grid for instruments.
- RC FILTERS (noise suppressor) are recommended in contactor coils, solenoids, etc.
- In control applications, it is essential to consider what could happen when some part of the system fails. The device's internal devices do not ensure total protection.
- Grounding helps limit the effects of noise due to electromagnetic interference (EMI). Run the grounding connection by using the grounding bolt and the grounding plane before turning on the device.

3.2 SPECIAL PRECAUTION

Because the transmitter is an electronic module, it requires some care when handling:

- When opening the transmitter to connect electrical wiring, avoid contact with the electronic circuit due to the risk of damage caused by static electricity.
- Pay close attention when connecting wires.
- Remember to pass all wires through a cable clip before completing electrical connections.
- When closing the housing, the cover should be placed again properly, ensuring proper sealing for this model.



3.3 ELECTRICAL CONNECTIONS

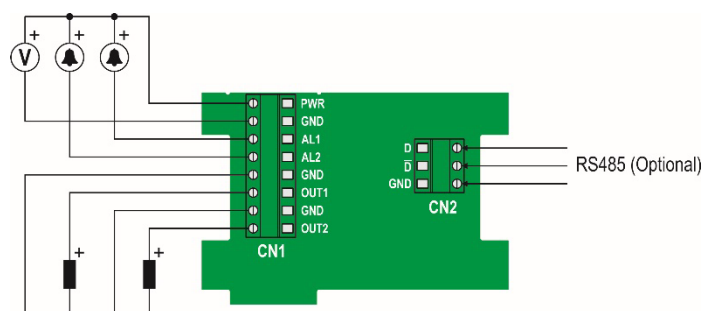


Figure 6

3.4 USB CONNECTION

RHT Climate Transmitter has a micro-B USB port located on the bottom of the device:

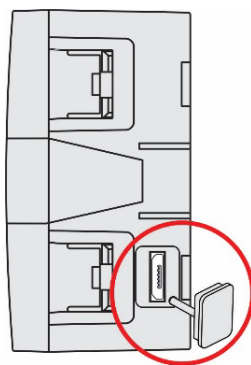


Figure 7

4 TECHNICAL SPECIFICATIONS

SPECIFICATIONS	RHT <i>Climate</i> TRANSMITTER											
Humidity measurement	Measurement range: - Configurable: Between 0 % RH and 100 % RH (no condensing). - Configurable: Between -90 °C at 100 °C in dew point.											
	Response time (1/e (63 %)): < 4 seconds @ 25 °C (with air moving at 1 m/s and polyamide tip).											
Temperature measurement	Measuring Range: DM model: -40 °C to 100 °C (-40 to 212 °F). WM model: -40 °C to 60 °C (-40 to 140 °F).											
	Response time (1/e (63 %)): < 5 seconds @ 25 °C (with air moving at 1 m/s and polyamide tip).											
Accuracy	- Temperature: ± 0.4 °C (0 °C to 60 °C). - Relative Humidity: See image below.											
	Other error sources: <table><tr><th>ERROR SOURCE</th><th>HUMIDITY</th><th>TEMPERATURE</th></tr><tr><td>Degradation over time</td><td>< 0.5 % RH / year</td><td>< 0.05 °C / year</td></tr><tr><td>Reproducibility</td><td>Included in the figure above</td><td>± 0.1 °C</td></tr><tr><td>Thermal drift</td><td>0.05 % RH / °C</td><td>Does not apply</td></tr></table> Note 1: When performing a transmitter calibration through a Metrology Lab, it is necessary to consider that the calibration uncertainty must be added to the product accuracy. If the humidity sensor is exposed to contaminant vapors or to extreme humidity and temperature conditions for prolonged periods, its calibration may drift. To attempt to restore accuracy, it is recommended to perform the sensor baking and rehydration procedures.	ERROR SOURCE	HUMIDITY	TEMPERATURE	Degradation over time	< 0.5 % RH / year	< 0.05 °C / year	Reproducibility	Included in the figure above	± 0.1 °C	Thermal drift	0.05 % RH / °C
ERROR SOURCE	HUMIDITY	TEMPERATURE										
Degradation over time	< 0.5 % RH / year	< 0.05 °C / year										
Reproducibility	Included in the figure above	± 0.1 °C										
Thermal drift	0.05 % RH / °C	Does not apply										
Operating temperature of the transmitter	- Operating temperature: -40 to 60 °C (-40 to 140 °F). - Storage temperature: -40 to 70 °C (-40 to 158 °F).											
Power supply	- Power supply via PWR terminals: 12 Vdc to 30 Vdc. - Power supply via USB cable: 4.75 Vdc to 5.25 Vdc.											
Maximum power supply current	< 70 mA ±10 % @ 24 Vdc.											
0vt1 Output 0vt2 Output	They may be configured independently to operate with signals 0-10 V or 4-20 mA. 0-10 V: - Maximum current: 2 mA - Resolution: 0.003 V 4-20 mA: 500 R maximum load - Resolution: 0.006 mA											
Alm1 Alarm alm2 Alarm	- Channel N 30 V / 200 mA type output. - Protection against overcurrent > 200 mA. - Overcurrent protection reset time: 5 seconds.											
Buzzer sound intensity	Approximately 70 dB at 1 m.											
Protection rating	- Electronic module housing: IP65. - Sensor's protective tip:											

SPECIFICATIONS	RHT <i>Climate</i> TRANSMITTER
	○ Polyamide tip: IP40 ○ High density Polyethylene (PE) tip: IP40 ○ Sintered bronze tip: IP40
Cable entrance	Cable gland PG7.
Housing	PA6.
Configurator software	• SigNow software, compatible with Windows 10 or higher. • SigNow app, compatible with Android and iOS smartphones.
S35 RHT sensor for replacement	Order code: 8803900010.
Certifications	CE Mark This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.
Internal protection against power supply voltage reverse polarity.	

Table 2

5 WARRANTY

Warranty conditions are available on our website www.novusautomation.com/warranty.